

National Science and Technology Council
Subcommittee for Buildings Technology R&D

Net Zero Energy High Performance Green Buildings

OSTP Perspective

Kevin Hurst
Asst. Dir. for Technology R&D
Office of Science and Technology Policy

Energy Stats



U.S energy consumption

- about 20% of global energy consumption
- 20 mbpd oil, 60 bcf natural gas, 3 million tons per day coal

U.S. energy-related CO₂ emissions

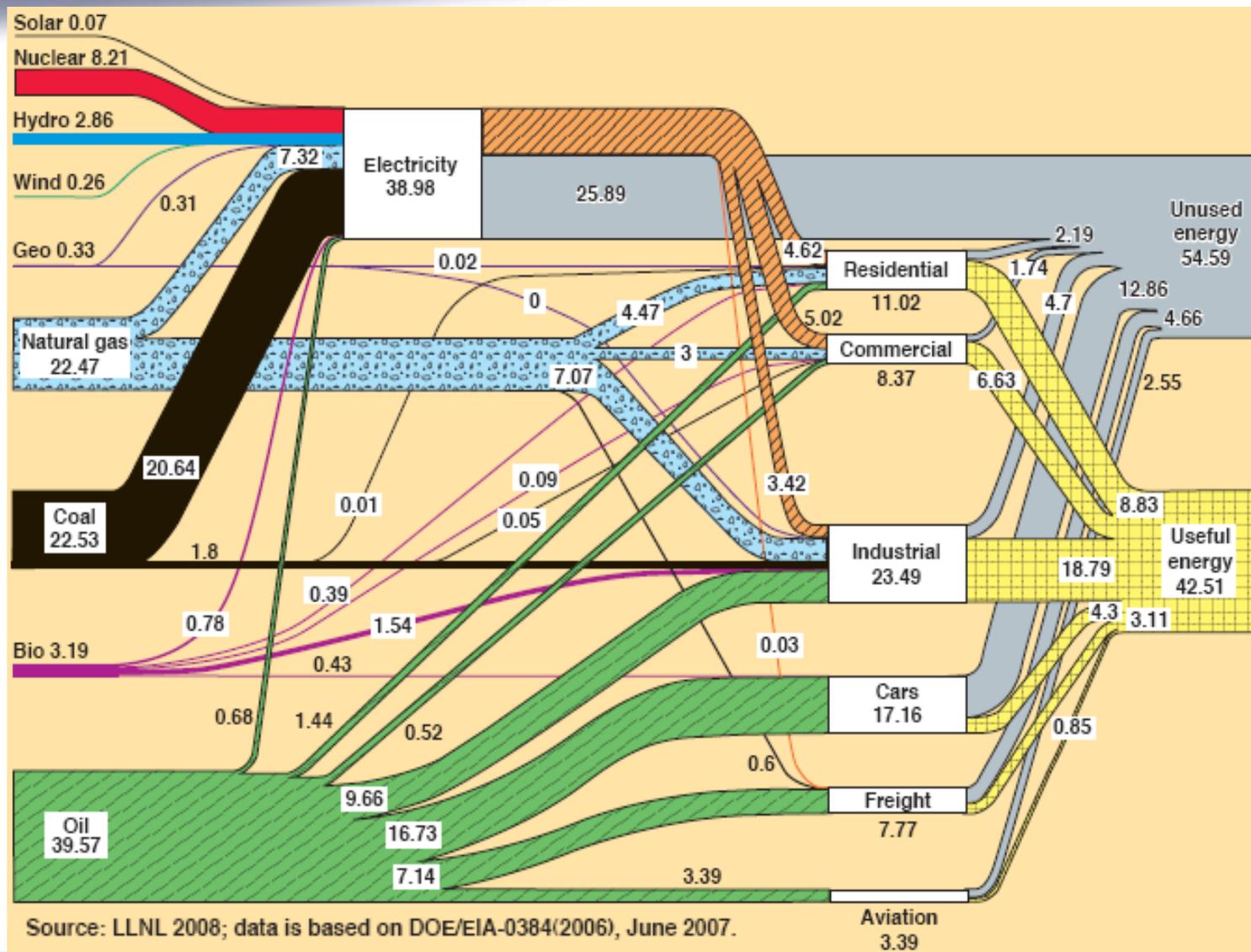
- 5900 MMT in 2005 (45% oil, 35% coal, 20% NG), 21% of global
- 6900 MMT in 2030, 16% of global

Global energy-related CO₂ emissions

- 28,000 MMT in 2005 (40% oil, 40% coal, 20% NG)
- 43,000 MMT in 2030
- 60% of the 25-year increase will be in China, India, and other developing nations in Asia; only 7% if the increase in the U.S.

The buildings sector accounts for about 40% of U.S. primary energy use and about 40% of energy-related CO₂ emissions.

U.S. Energy Flows 2006



U.S. Goals & Mandates



President's climate goals

- 18% GHG emissions intensity reduction by 2012
 - Break the link between GDP and CO₂ emissions – advanced technology
 - From 2003 to 2006, U.S. reduced emissions intensity by 10.4%
- Stop the growth in U.S. GHG emissions by 2025
- Global agreement on a long-term goal for reducing GHG emissions and a post-2012 framework that includes the national plans of all major economies

New mandates in the Energy Independence and Security Act of 2007

- Vehicle efficiency: 40% increase in fuel economy standards by 2020
- Renewable fuels: 36 billion gals/year biofuels (21 billion advanced) by 2022
- Lighting: 30% increase in efficiency
- Appliances: significantly increased efficiency standards in 9 categories
- Federal buildings: 30% reduction in energy use by 2015

State and Local mandates

- Building Codes
- Renewable Power Standards

Energy & Climate Initiatives - Domestic



Climate Change Technology Program (CCTP)

- All federal R&D related to climate mitigation
- \$4.4B in FY09 (compared to \$2.5B in FY03)

Advanced Energy Initiative (AEI)

- DOE clean energy R&D – hydrogen, PHEV, solar, wind, biomass, clean coal, nuclear, basic energy sciences, fusion
- \$3.2B in FY09 (compared to \$1.8B in FY06)

Incentives

- \$10 billion in tax credits and other incentives in EPACT 2005
- \$40 billion in Loan guarantees for renewable energy, energy efficiency, nuclear, and clean coal projects

Government-Industry Partnerships

- EnergyStar, Climate Vision, Climate Leaders
- FreedomCAR & Fuel, FutureGen, NP2010

Executive Order 13423

- Requires Federal agencies to decrease energy intensity by 30% by 2015.
- Requires agencies to reduce water consumption intensity by 16% by 2015.

International Partnerships & Initiatives



Major Economies Process (in support of the Bali Action Plan)

International Clean Technology Fund

WTO Doha trade barrier reductions

Binding agreement on HCFC reductions

Asia-Pacific Partnership on Clean Development and Climate

Global Earth Observation System of Systems

Tropical Forest Conservation

R&D Partnerships: IPHE, CSLR, GNEP, GenIV, ITER, FutureGen

OSTP Roles



- Provide S&T expertise to the President and his staff in the development of Federal policies and programs.
- Establish, in conjunction with OMB, top-level budget priorities for the Federal S&T portfolio.
- Coordinate S&T policy across the Federal agencies in support of the President's policy goals and initiatives.
 - Operate the National Science and Technology Council
- More information at www.ostp.gov

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